

9 September 2003

The Committee Secretary
House of Representatives
Standing Committee on Science and Innovation
R1 Suite 116
Parliament House
Canberra ACT 2600

**Submission Coordination of Science to Combat Salinity from the Lower Murray Darling
Catchment Management Board**

Thank you for the opportunity for input to the Coordination of Science to Combat Salinity.

The Lower Murray Darling Catchment covers an area of 6.3 million hectares in the south west of New South Wales. It includes the lower NSW reaches of the Murray River and the lower reaches of the Darling River and it's junction with the Murray, the Menindee Lakes system, Lake Victoria, Willandra World Heritage area and Mungo National Park.

To address the terms of reference

a) use of salinity science base and research data

In 2001 the Lower Murray Darling Catchment Management Board (LMDCMB) set an end of valley Salinity Catchment Target based on the MDBC target at Morgan, as outlined in the *NSW Salinity Strategy 2000*.

After considering information and recommendations from staff of the former Dept of Land & Water Conservation (Murray Region) as to the possibility of setting an end of valley target for this catchment, the Board amended the Salinity Catchment Target in 2002.

The following criteria were considered:

- Adaptive management,
- Site selection,
- Recent data,
- Partitioning of contributions from outside the catchment,
- Percentiles,
- Models, and
- Climatic variability.

The updated end of valley Salinity Catchment Target, which follows (overleaf), is based on river salt concentration and endorsed a number of within valley targets to consider the effect of incoming river salt concentration and load, and contributions of land based activities within the catchment. This allows the source of salt contributions and the effect of the salt to end users to be determined.

To maintain the year 2000, 95th percentile¹, salt concentration of 463 EC at Lock 6 over the duration of the plan, with variations due to climatic conditions or external salt contributions excepted*.

** Future modelling and data analysis will refine these values.*

¹ 95th percentile means that salinity concentration, measured as electrical conductivity, do not exceed 463 EC₂₅, 95% of the time.

The selection of within valley targets and monitoring points is based on:

- catchment geography,
- salinity risk to catchment assets and values,
- land and river management zones, and
- influencing factors such as site selection, data, climatic variation, modelling & trend analysis.

The within valley targets relate to Lock 9 (Murray River), Euston Weir (Murray River), Burtundy (Darling River), the Great Darling Anabranh and Menindee Lakes.

While the targets are expressed as electrical conductivity (EC), they are historical measurements used to calibrate and validate the model. The Board expects the target to be further amended as the original monthly time step model has now been updated to a daily time step model.

b) linkages between those conducting research and those implementing salinity solutions

The achievement of the end of valley salinity target relies on the cumulative effect of a number of management actions proposed by the Board which include prevention, treatment of causes, amelioration, adaptation and monitoring.

One of the most difficult aspects of implementing the actions is to predict the salinity benefit delivered by the actions, in some cases the timeframe to record a significant improvement will exceed the timeframe of the action. This means that investment in research, and subsequent actions, often has to be on the basis of belief, or confidence, that the action will result in salinity benefits. For example, it is widely accepted that retention of native vegetation can reduce recharge. In the rangelands area of this catchment it is possible to determine recharge risk but it is very difficult to measure the salinity benefit as the time frame may be 50 - 100 years.

The use of a model to determine the target allows predictive simulation of outcome as soon as an action is identified and the cause and effect relationship defined.

Technical and scientific support to those implementing salinity solutions should integrate information into an accessible and useable form. The *Precautionary Principle* should also be applied, action should not be delayed until scientific proof is determined. Investigation is a key area that will require additional funding to link implementation of actions to outcomes and guide future research.

c) adequacy of technical and scientific support in applying salinity management

The LMDCMB is satisfied with the technical and scientific support from the MDBC and the Dept of Infrastructure, Planning & Natural Resources. It is interesting to note that while the NSW Salinity Strategy could not set a salinity target for the Murray River catchments, there is sufficient information and expertise in regional areas for both the Lower Murray Darling CMB and the Murray CMB to set both end of valley and within valley targets.

The ability to be flexible and to undertake adaptive management is critical in the use of technical and scientific support in applying salinity management.

Salinity research must be driven by the need for knowledge that provides the means to make a difference not research that is the mere accumulation of knowledge with no particular application.

A handwritten signature in black ink, appearing to read 'Mark King', is positioned in the middle-left section of the page.

Mark King
Chairperson, Lower Murray Darling Catchment Management Board

Enclosures:

Salinity Targets Discussion Paper (Blueprint Support Document 4 Appendix 3)

Salinity section of Monitoring & Audit Provisions (Blueprint Support Document 4)